

=> fil reg

FILE 'REGISTRY' ENTERED AT 16:17:00 ON 29 NOV 2007
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STRUCTURE FILE UPDATES: 28 NOV 2007 HIGHEST RN 956214-95-2
 DICTIONARY FILE UPDATES: 28 NOV 2007 HIGHEST RN 956214-95-2

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

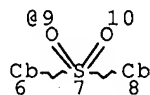
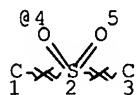
Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
 predicted properties as well as tags indicating availability of
 experimental property data in the original document. For information
 on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=> d que stat l12

L6 STR



G1 11

VAR G1=4/9

NODE ATTRIBUTES:

NSPEC	IS	RC	AT	1
NSPEC	IS	RC	AT	2
NSPEC	IS	RC	AT	3
DEFAULT MLEVEL IS ATOM				
GGCAT	IS	UNS	AT	6
GGCAT	IS	UNS	AT	8
DEFAULT ECLEVEL IS LIMITED				

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L7 SCR 1781 OR 1782

L9 553397 SEA FILE=REGISTRY SSS FUL L6 AND L7

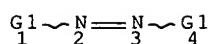
L10 532170 SEA FILE=REGISTRY ABB=ON PLU=ON L9 NOT PMS/CI

L11 514406 SEA FILE=REGISTRY ABB=ON PLU=ON L10 NOT M/ELS

L12 61062 SEA FILE=REGISTRY ABB=ON PLU=ON L11 AND (C(L)H(L)O(L)S)
 /ELS AND 4/ELC.SUB

=> d que stat 124

L14 STR



Ak @5

Cy @6

VAR G1=5/6

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 5

GGCAT IS UNS AT 6

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE

L16 SCR 2108

L18 SCR 1665

L20 SCR 2043

L22 328901 SEA FILE=REGISTRY SSS FUL L14 AND L16 AND L18 NOT L20

L24 288089 SEA FILE=REGISTRY ABB=ON PLU=ON L22 NOT M/ELS

=> d his nofile

(FILE 'HOME' ENTERED AT 13:40:00 ON 29 NOV 2007)

FILE 'HCAPLUS' ENTERED AT 13:40:10 ON 29 NOV 2007

L1 1 SEA ABB=ON PLU=ON US2004048163/PN
SEL RN

FILE 'REGISTRY' ENTERED AT 13:40:46 ON 29 NOV 2007

L2 54 SEA ABB=ON PLU=ON (10377-51-2/BI OR 10411-26-4/BI OR
105-58-8/BI OR 105-64-6/BI OR 105-74-8/BI OR 108-32-7/BI
OR 108-88-3/BI OR 108-90-7/BI OR 126-33-0/BI OR 126-58-9/
BI OR 127-63-9/BI OR 131651-65-5/BI OR 1330-20-7/BI OR
14024-11-4/BI OR 14283-07-9/BI OR 14666-78-5/BI OR
149-32-6/BI OR 15520-11-3/BI OR 1561-49-5/BI OR 162684-16
-4/BI OR 1712-87-4/BI OR 18424-17-4/BI OR 193215-00-8/BI
OR 21324-40-3/BI OR 26748-41-4/BI OR 27359-10-0/BI OR
28452-93-9/BI OR 29935-35-1/BI OR 3006-82-4/BI OR
32752-09-3/BI OR 33454-82-9/BI OR 35363-40-7/BI OR
39300-70-4/BI OR 4437-85-8/BI OR 462-06-6/BI OR 502-44-3/
BI OR 56-81-5/BI OR 56525-42-9/BI OR 616-38-6/BI OR
620-32-6/BI OR 623-53-0/BI OR 623-96-1/BI OR 67-71-0/BI
OR 71-43-2/BI OR 77-77-0/BI OR 7790-99-0/BI OR 7791-03-9/
BI OR 78-67-1/BI OR 79-10-7/BI OR 90076-65-6/BI OR
92177-99-6/BI OR 94-36-0/BI OR 96-49-1/BI OR 98-95-3/BI)
D SCA

L3 9 SEA ABB=ON PLU=ON L2 AND S/ELS
D SCA

L4 3 SEA ABB=ON PLU=ON L2 AND N/ELS
D SCA

FILE 'HCAPLUS' ENTERED AT 13:55:39 ON 29 NOV 2007

L5 1 SEA ABB=ON PLU=ON L1 AND L3
D HITSTR

FILE 'LREGISTRY' ENTERED AT 14:01:04 ON 29 NOV 2007

L6

STR

FILE 'REGISTRY' ENTERED AT 14:03:49 ON 29 NOV 2007

L7 SCR 1781 OR 1782
L8 50 SEA SSS SAM L6 AND L7
L9 553397 SEA SSS FUL L6 AND L7
L10 532170 SEA ABB=ON PLU=ON L9 NOT PMS/CI
L11 514406 SEA ABB=ON PLU=ON L10 NOT M/ELS
L12 61062 SEA ABB=ON PLU=ON L11 AND (C(L)H(L)O(L)S)/ELS AND
4/ELC.SUB
L13 6 SEA ABB=ON PLU=ON L2 AND L12
SAV TEMP L12 WEI086A/A

FILE 'STNGUIDE' ENTERED AT 15:02:25 ON 29 NOV 2007

FILE 'LREGISTRY' ENTERED AT 15:03:08 ON 29 NOV 2007

L14 STR

FILE 'REGISTRY' ENTERED AT 15:07:15 ON 29 NOV 2007

L15 50 SEA SSS SAM L14
L16 SCR 2108
L17 50 SEA SSS SAM L14 AND L16
L18 SCR 1665
L19 50 SEA SSS SAM L14 AND L16 AND L18
L20 SCR 2043
L21 50 SEA SSS SAM L14 AND L16 AND L18 NOT L20
L22 328901 SEA SSS FUL L14 AND L16 AND L18 NOT L20
L23 1 SEA ABB=ON PLU=ON L2 AND L22
L24 288089 SEA ABB=ON PLU=ON L22 NOT M/ELS
SAV TEMP L24 WEI086B/A
L25 1 SEA ABB=ON PLU=ON L2 AND C6H10O6/MF
L26 1 SEA ABB=ON PLU=ON L2 AND C18H34O4/MF
L27 1 SEA ABB=ON PLU=ON L2 AND C8H14O6/MF
L28 1 SEA ABB=ON PLU=ON L2 AND C14H22O6/MF
L29 1 SEA ABB=ON PLU=ON L2 AND C12H24O3/MF
L30 1 SEA ABB=ON PLU=ON L2 AND C22H38O6/MF
L31 1 SEA ABB=ON PLU=ON L2 AND C8H18O2/MF
L32 1 SEA ABB=ON PLU=ON L2 AND C24H46O4/MF
L33 1 SEA ABB=ON PLU=ON L2 AND C14H10O4/MF
L34 1 SEA ABB=ON PLU=ON L2 AND C16H14O4/MF
L35 10 SEA ABB=ON PLU=ON (L25 OR L26 OR L27 OR L28 OR L29 OR
L30 OR L31 OR L32 OR L33 OR L34)

FILE 'HCAPLUS' ENTERED AT 15:44:00 ON 29 NOV 2007

L36 40822 SEA ABB=ON PLU=ON L12
L37 124918 SEA ABB=ON PLU=ON L24
L38 14440 SEA ABB=ON PLU=ON L35
L39 QUE ABB=ON PLU=ON AZO?
L40 QUE ABB=ON PLU=ON ?PEROX?
L41 2947 SEA ABB=ON PLU=ON L36 AND (L37 OR L38 OR L39 OR L40)
L42 QUE ABB=ON PLU=ON ELECTROLY?
L43 50 SEA ABB=ON PLU=ON L41 AND L42
L44 QUE ABB=ON PLU=ON (LI OR LITHIUM) (3A) BATTER?
L45 QUE ABB=ON PLU=ON (LI OR LITHIUM) (2A) SALT
L46 8872 SEA ABB=ON PLU=ON L23
L47 15 SEA ABB=ON PLU=ON L43 AND (L44 OR L45)
L48 7 SEA ABB=ON PLU=ON L47 AND L38
L49 5 SEA ABB=ON PLU=ON L47 AND L46
L50 QUE ABB=ON PLU=ON WT## OR WEIGHT?
L51 0 SEA ABB=ON PLU=ON L47 AND L50

L52 15 SEA ABB=ON PLU=ON L47 OR L48 OR L49
 L53 3 SEA ABB=ON PLU=ON L48 AND L49
 L54 12 SEA ABB=ON PLU=ON L52 NOT L53

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 16:17:10 ON 29 NOV 2007

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FILE COVERS 1907 - 29 Nov 2007 VOL 147 ISS 23

FILE LAST UPDATED: 28 Nov 2007 (20071128/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 153 ibib abs hitstr hitind 1-3

L53 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2007:41382 HCAPLUS Full-text

DOCUMENT NUMBER: 146:145946

TITLE: **Electrolyte for lithium secondary battery**

INVENTOR(S): Kim, Cheonsoo

PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 11pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

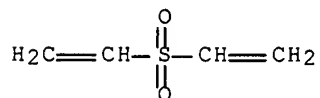
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

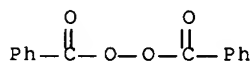
PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2007009806	A1	20070111	US 2006-481911	200607 07
KR 2007006253	A	20070111	KR 2005-61409	200507 07
PRIORITY APPLN. INFO.:			KR 2005-61409	A 200507 07

OTHER SOURCE(S): MARPAT 146:145946

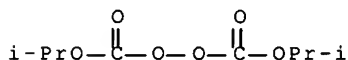
- AB The invention concerns an **electrolyte** for a **lithium secondary battery** and a **lithium secondary battery** having the **electrolyte**, the **electrolyte** including a **lithium salt**; a non-aqueous organic solvent including γ -butyrolactone-; and a succinic anhydride.
- IT 77-77-0, Divinyl sulfone
 RL: MOA (Modifier or additive use); USES (Uses)
 (**electrolyte** for **lithium secondary battery**)
- RN 77-77-0 HCAPLUS
- CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



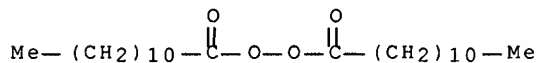
- IT 94-36-0, Dibenzoyl peroxide, reactions
 105-64-6, Di-isopropyl peroxydicarbonate
 105-74-8, Dilauroyl peroxide 3006-82-4,
 tert-Butylperoxy-2-ethyl hexanoate 15520-11-3,
 Bis(4-tert-butylcyclohexyl) peroxydicarbonate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (**electrolyte** for **lithium secondary battery**)
- RN 94-36-0 HCAPLUS
- CN Peroxide, dibenzoyl (CA INDEX NAME)



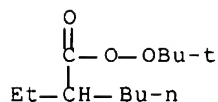
- RN 105-64-6 HCAPLUS
- CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



- RN 105-74-8 HCAPLUS
- CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)

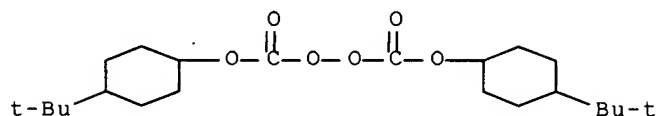


- RN 3006-82-4 HCAPLUS
- CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl]
ester (CA INDEX NAME)



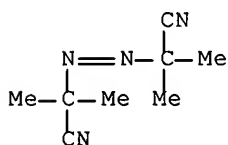
IT 78-67-1, 2,2'-Azo-bis(isobutyronitrile)

4419-11-8, 2,2'-Azo-bis(2,4-dimethyl
valeronitrile)

RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte for lithium secondary
battery)

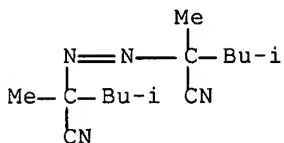
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 4419-11-8 HCAPLUS

CN Pentanenitrile, 2,2'-(1,2-diazenediyl)bis[2,4-dimethyl- (CA INDEX
NAME)



INCL 429329000; 429332000; 429200000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrolyte lithium secondary battery

IT Battery electrolytes

(electrolyte for lithium secondary
battery)

IT Aromatic hydrocarbons, uses

Esters, uses

Ethers, uses

Ketones, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(**electrolyte** for lithium secondary
battery)

IT Secondary batteries

(lithium; **electrolyte** for lithium
secondary battery)

IT 77-77-0, Divinyl sulfone 96-48-0, γ -Butyrolactone
108-30-5, Succinic anhydride, uses 872-36-6, Vinylene carbonate
3741-38-6, Ethylene sulfite 25721-76-0, Poly(ethylene
glycol)dimethacrylate 26570-48-9, Poly(ethylene glycol)diacrylate
413569-08-1 919110-87-5

RL: MOA (Modifier or additive use); USES (Uses)

(**electrolyte** for lithium secondary
battery)

IT 94-36-0, Dibenzoyl peroxide, reactions

105-64-6, Di-isopropyl peroxydicarbonate

105-74-8, Dilauroyl peroxide 107-71-1,

tert-Butyl peroxy acetate 109-13-7, tert-Butyl

peroxy isobutyrate 110-22-5, Diacetyl peroxide

614-45-9, tert-Butyl peroxy benzoate 686-31-7, tert-

Amylperoxy 2-ethyl hexanoate 927-07-1, tert-Butyl

peroxypivalate 2372-21-6, tert-Butyl peroxy

isopropyl carbonate 3006-82-4, tert-Butylperoxy

-2-ethyl hexanoate 3851-87-4, Bis(3,5,5-trimethylhexanoyl)

peroxide 13122-18-4 15518-51-1, Diethylene glycol

bis(tert-butyl peroxydicarbonate) 15520-11-3,

Bis(4-tert-butylcyclohexyl) peroxydicarbonate

16111-62-9, Di-2-ethylhexyl peroxy dicarbonate

26748-38-9, tert-Butyl peroxy neoheptanoate 29240-17-3,

tert-Amyl peroxypivalate 34443-12-4, tert-Butyl

peroxy-2-ethylhexyl carbonate 36536-42-2 51938-28-4,

tert-Hexyl peroxypivalate 52238-68-3 68860-54-8

919110-90-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(**electrolyte** for lithium secondary
battery)

IT 71-43-2, Benzene, uses 78-67-1, 2,2'-Azo

-bis(isobutyronitrile) 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 108-32-7, Propylene carbonate 108-67-8,

Mesitylene, uses 108-86-1, Bromobenzene, uses 108-88-3, Toluene,

uses 108-90-7, Chlorobenzene, uses 462-06-6, Fluorobenzene

463-79-6D, Carbonic acid, ester 616-38-6, Dimethyl carbonate

623-53-0, EthylMethyl carbonate 623-96-1, Dipropyl carbonate

1330-20-7, Xylene, uses 2094-98-6 4419-11-8, 2,2'-

Azo-bis(2,4-dimethyl valeronitrile) 4437-70-1,

2,3-Butylene carbonate 4437-85-8, 1,2-Butylene carbonate

4437-86-9 7447-41-8, Lithium chloride, uses 7791-03-9, Lithium

perchlorate 10377-51-2, Lithium iodide 14024-11-4, Lithium

tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate

18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium

hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate

33454-82-9, Lithium triflate 35363-40-7, Ethylpropyl carbonate

37220-89-6, Aluminum lithium oxide 56525-42-9, Methylpropyl

carbonate 89489-56-5, 1,2-Pentylene carbonate 90076-65-6

114435-02-8, Fluoroethylene carbonate 131651-65-5

RL: TEM (Technical or engineered material use); USES (Uses)

(**electrolyte** for lithium secondary
battery)

L53 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:203431 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:238483
 TITLE: **Electrolyte for a lithium battery**
 INVENTOR(S): Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae;
 Cho, Jae-Phil; Jung, Cheol-Soo
 PATENT ASSIGNEE(S): S. Korea
 SOURCE: U.S. Pat. Appl. Publ., 13 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2004048163	A1	20040311	US 2003-656086	200309 05
KR 2004022054	A	20040311	KR 2002-53879	200209 06
JP 2004103573	A	20040402	JP 2003-282119	200307 29
CN 1495961	A	20040512	CN 2003-164853	200309 06
PRIORITY APPLN. INFO.:			KR 2002-53879	A 200209 06

OTHER SOURCE(S): MARPAT 140:238483

AB An **electrolyte** for a **lithium battery** includes a nonaq. organic solvent, a **lithium salt**, and an additive comprising (a) a sulfone-based compound and (b) a C3-30 organic **peroxide** or **azo**-based compound. The **electrolyte** may further include a poly(ester)(meth)acrylate or a polymer that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth)acrylic ester and the remaining hydroxyl groups that are not substituted with the (meth)acrylic ester are substituted with a group having no radical reactivity. The **lithium battery** comprising the **electrolyte** of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temperature, and swelling inhibition properties.

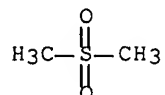
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone
 78-67-1, 2,2'-Azobisisobutyronitrile
 94-36-0, Benzoyl peroxide, uses 105-64-6
 , Diisopropyl peroxy dicarbonate 105-74-8,
 Lauroyl peroxide 126-33-0, Tetramethylene
 sulfone 127-63-9, Phenyl sulfone 620-32-6,
 Benzyl sulfone 1561-49-5, Dicyclohexylperoxy
 dicarbonate 1712-87-4, m-Toluoyl peroxide
 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)
 peroxy dicarbonate 28452-93-9, Butadiene sulfone
 32752-09-3, Isobutyl peroxide 92177-99-6

, 3,3,5-Trimethylhexanoyl peroxide

RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery)

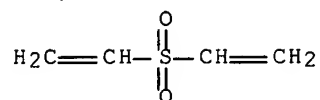
RN 67-71-0 HCAPLUS

CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



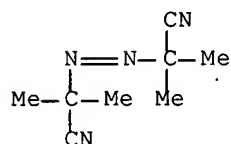
RN 77-77-0 HCAPLUS

CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



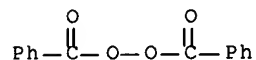
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



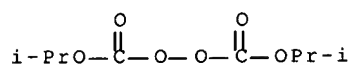
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



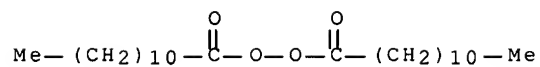
RN 105-64-6 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



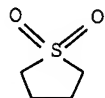
RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



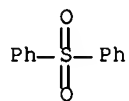
RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



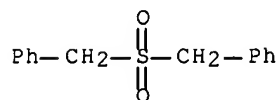
RN 127-63-9 HCAPLUS

CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



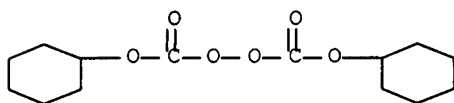
RN 620-32-6 HCAPLUS

CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



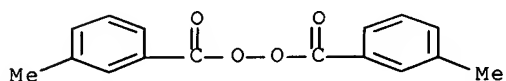
RN 1561-49-5 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



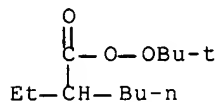
RN 1712-87-4 HCAPLUS

CN Peroxide, bis(3-methylbenzoyl) (CA INDEX NAME)



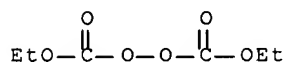
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



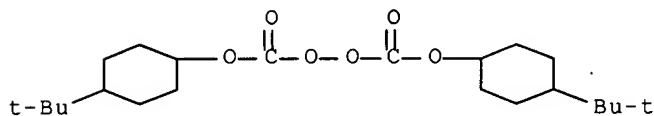
RN 14666-78-5 HCAPLUS

CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



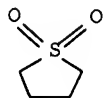
RN 28452-93-9 HCAPLUS

CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

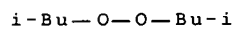
CRN 126-33-0

CMF C4 H8 O2 S



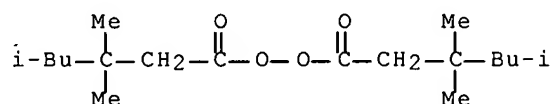
RN 32752-09-3 HCAPLUS

CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS

CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



- IC ICM .H01M010-40
- INCL 429326000; 429329000; 429339000; 429340000
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
- ST **lithium battery electrolyte**
- IT **Battery electrolytes**
(electrolyte for lithium battery)
- IT Aromatic hydrocarbons, uses
Carbonates, uses
Esters, uses
Ethers, uses
Ketones, uses
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery)
- IT **Azo compounds**
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery)
- IT Carbonaceous materials (technological products)
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery)
- IT Sulfones
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery)
- IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(hydroxy-terminated; electrolyte for lithium battery)
- IT Secondary batteries
(lithium; electrolyte for lithium battery)
- IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(methacrylate; electrolyte for lithium battery)
- IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic, C3-30; electrolyte for lithium battery)
- IT Esters, uses
RL: DEV (Device component use); USES (Uses)
(poly-; electrolyte for lithium battery)
- IT Imides
Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(sulfonimides, perfluoro derivs., lithium salts
; electrolyte for lithium battery)
- IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6,

Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methyleneethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl) 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 39300-70-4, Lithium nickel oxide 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium nonafluorobutanesulfonate 162684-16-4, Lithium manganese nickel oxide 193215-00-8, Cobalt lithiummanganese nickel oxide Co0.1LiMn0.2Ni0.7O2

RL: DEV (Device component use); USES (Uses)

(electrolyte for lithium battery)

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 78-67-1, 2,2'-Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexylperoxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl) peroxy dicarbonate 26748-41-4 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for lithium battery)

IT 79-10-7DP, Acrylic acid, reaction product with dipentaerythritol and ε-caprolactone and butylcarbonic acid 126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone and acrylic acid and butylcarbonic acid 502-44-3DP, ε-Caprolactone, reaction product with dipentaerythritol and acrylic acid and butylcarbonic acid 10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and ε-caprolactone and acrylic acid

RL: MOA (Modifier or additive use); SPN (Synthetic preparation);

PREP (Preparation); USES (Uses)

(electrolyte for lithium battery)

L53 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:754386 HCAPLUS Full-text

DOCUMENT NUMBER: 126:92052

TITLE: Catalyst-containing solid electrolytes and batteries using these electrolytes

INVENTOR(S): Chaloner-Gill, Benjamin; Olsen, Ib I.; Saidi, Eileen S.

PATENT ASSIGNEE(S): USA

SOURCE: U.S., 8 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 5580680	A	19961203	US 1994-267066
			199406 27
PRIORITY APPLN. INFO.:		US 1994-267066	199406 27

AB The **electrolytes** include a 1st catalyst that is capable of initiating the polymerization of solvent components at elevated temps. to increase the resistance (or impedance) of the solid **electrolyte** and thereby prevent thermal runaway and/or a 2nd catalyst that is capable of initiating the polymerization of flammable substances (e.g., olefins) in the solvent. To assure that the catalysts do not prematurely initiate polymerization below a certain temperature, the catalysts may be microencapsulated within a heat-sensitive material that disintegrates or dissolve at a predetd. elevated temperature to release the catalysts. Microencapsulation permits the controlled release of the catalysts into the **electrolyte** under the appropriate conditions.

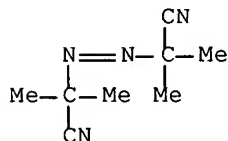
IT 78-67-1, Azobisisobutyronitrile 94-36-0,
Benzoyl peroxide, uses

RL: CAT (Catalyst use); USES (Uses)

(polymerization catalyst for battery solid **electrolytes**)

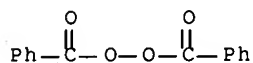
RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



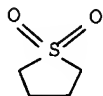
IT 126-33-0, Sulfolane

RL: MOA (Modifier or additive use); USES (Uses)

(polymerization catalyst for battery solid **electrolytes** containing solvent of)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16

INCL 429192000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 37
 ST battery solid **electrolyte** solvent polymn catalyst;
 flammable substance polymn catalyst battery **electrolyte**;
 safety battery polymn catalyst **electrolyte**
 IT Polymerization catalysts
 (Ziegler-Natta; for battery solid **electrolytes**)
 IT Polymerization catalysts
 (battery solid **electrolytes** containing)
 IT Battery **electrolytes**
 (containing polymerization catalyst)
 IT Secondary **batteries**
 (lithium; with polymerization catalysts for safety)
 IT Safety
 (of **lithium batteries** with polymerization
 catalysts-containing solid **electrolytes**)
 IT Bronsted acids
 RL: CAT (Catalyst use); USES (Uses)
 (polymerization catalyst for battery solid **electrolytes**)
 IT 78-67-1, Azobisisobutyronitrile 94-36-0,
 Benzoyl **peroxide**, uses 110-22-5, Acetyl **peroxide**
 7440-23-5, Sodium, uses 7637-07-2, Boron trifluoride, uses
 RL: CAT (Catalyst use); USES (Uses)
 (polymerization catalyst for battery solid **electrolytes**)
 IT 67-68-5, uses 96-48-0, γ -Butyrolactone 96-49-1, Ethylene
 carbonate 108-32-7, Propylene carbonate 110-71-4, Glyme
 111-96-6, Diglyme 112-49-2, Triglyme 126-33-0, Sulfolane
 143-24-8, Tetraglyme 646-06-0, Dioxolane
 RL: MOA (Modifier or additive use); USES (Uses)
 (polymerization catalyst for battery solid **electrolytes** containing
 solvent of)

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L54 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2007:1278662 HCAPLUS Full-text
 TITLE: Anion receptor comprising aromatic amines
 substituted with electron withdrawing groups and
electrolyte using the same for alkali
 metal batteries
 INVENTOR(S): Kim, Hee Jung; Lee, Won Sil
 PATENT ASSIGNEE(S): Kyungwon Enterprise Co., Ltd., S. Korea
 SOURCE: PCT Int. Appl., 63pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2007126262	A1	20071108	WO 2007-KR2080	200704 27

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
 CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
 FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP,

KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY,
 MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
 PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV,
 SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
 ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU,
 IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK,
 TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
 TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,
 ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.:

KR 2006-38047

A

200604

27

AB Disclosed is a novel anion receptor and **electrolytes** containing the same. A novel anion receptor is an aromatic hydrocarbon compound having an amine substituted with electron withdrawing groups. When the anion receptor is added to the **electrolyte**, ionic conductivity and cation transference number of **electrolytes** are enhanced, thereby increasing the electrochem. stability of alkali metal batteries using the **electrolytes**. Thus, sulfonylation of 4-hexylaniline with triflic anhydride afforded the anionic receptor 4-[H(CH₂)₆]C₆H₄N(SO₂CF₃)₂ (4-hexylphenyl-TFSI); the latter was mixed with 0.8 g bisphenol A ethoxylate dimethacrylate (crosslinking agent) and lithium triflate and to this mixture was subsequently added dimethoxyphenylacetophenone and the resulting solution coated onto a conductive glass substrate and exposed to UV irradiation, forming the solid polymer **electrolyte**. The ionic conductivity of the solid polymer **electrolyte** containing 4-hexylphenyl-TFSI as anion receptor exceeded the comparative **electrolyte** without anion receptor as temperature increased.

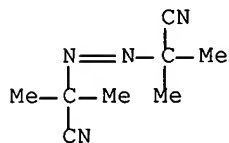
IT 78-67-1, AIBN

RL: CAT (Catalyst use); USES (Uses)

(heat-curing initiator for polymer **electrolyte**; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)

RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)]



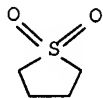
IT 126-33-0, Sulfolane

RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. solvent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST alkali metal battery anion receptor arom amine **electrolyte**
- IT Anions
 Battery **electrolytes**
 Ionic conductivity
 Polymer **electrolytes**
 (anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Amines
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (aromatic, substituted with electron withdrawing groups, as anion receptors; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Carbon black
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cathode coating; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Fluoropolymers
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (cathode coatings; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Secondary batteries
 (lithium; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Polyoxaalkylenes
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (polymer **electrolytes**; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT Receptors
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (synthetic; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT lithium alloy, base, base
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anode; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 7447-41-8, Lithium chloride 7550-35-8, Lithium bromide
 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide
 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 87187-79-9 90076-65-6, Lithium

- bis(trifluoromethanesulfonyl)imide 132404-42-3
 RL: MOA (Modifier or additive use); USES (Uses)
 (anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 955997-47-4P
 RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 64696-13-5DP, Bisphenol A ethoxylate dimethacrylate homopolymer, lithium complexes, trifluoromethanesulfonimide-containing
 RL: POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 7439-93-2DP, Lithium, polymer **electrolyte** complexes
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 2428-04-8P 838884-10-9P 955997-42-9P 955997-43-0P
 955997-44-1P 955997-45-2P 955997-46-3P 955997-48-5P
 955997-49-6P 955997-50-9P 955997-51-0P 955997-52-1P
 955997-53-2P 955997-54-3P 955997-55-4P 955997-56-5P
 955997-57-6P 955997-58-7P 955997-59-8P 955997-60-1P
 955997-61-2P 955997-62-3P 955997-63-4P 955997-64-5P
 955997-65-6P 955997-66-7P 955997-67-8P 955997-68-9P
 955997-69-0P 955997-70-3P 955997-71-4P 955997-72-5P
 955997-73-6P 955997-74-7P 955997-75-8P 955997-76-9P
 955997-78-1P 955997-79-2P 955997-80-5P 955997-81-6P
 955997-82-7P 955997-83-8P 955997-84-9P 955997-85-0P
 955997-86-1P
 RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (anion receptor; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 7439-93-2, Lithium 7439-93-2D, Lithium, intercalation compds. with carbon 7440-44-0D, Carbon, intercalation compds. with lithium 7782-42-5, Graphite 7782-42-5D, Graphite, intercalation compds. with lithium
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anode; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 145106-51-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (azidification; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 24937-79-9, Poly(vinylidene fluoride)
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (cathode coating; anion receptor comprising aromatic amines

- substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 25233-30-1, Polyaniline 25948-29-2, Poly(carbon disulfide)
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (cathode; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12162-79-7, lithium manganese oxide (LiMnO₂) 12190-79-3, cobalt lithium oxide (LiCoO₂) 12201-18-2, Lithium molybdenum sulfide (LiMoS₂) 55326-82-4, lithium titanium sulfide (LiTiS₂) 135573-53-4, Cobalt lithium nickel oxide (CoO-1LiNiO-1O₂) 138187-48-1, Lithium vanadium oxide (Li_{1.2}V₂O₅) 252234-58-5 252234-59-6 256345-13-8, Lithium vanadium oxide (Li_{2.5}V₆O₁₃) 600177-48-8 911110-65-1, Lithium niobium selenide (LiNbSe₃)
 RL: TEM (Technical or engineered material use); USES (Uses)
 (cathode; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 128-09-6, N-Chlorosuccinimide
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (chlorination agent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 506-77-4, Cyanogen chloride
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cyanation agent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 367-25-9, 2,4-Difluoroaniline
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (cyanation, chlorination, trifluoroacetylation; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 5339-26-4P, 1-(2-Bromoethyl)-4-nitrobenzene
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (dehydrobromination; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 78-67-1, AIBN
 RL: CAT (Catalyst use); USES (Uses)
 (heat-curing initiator for polymer **electrolyte**; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 10036-47-2, Tetrafluorohydrazine
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydrazinolysis reaction; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 328-73-4, 1-Iodo-3,5-bis(trifluoromethyl)benzene 2265-93-2, 2,4-Difluoroiodobenzene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (hydrazinolysis; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)

- IT 9011-17-0, Vinylidene fluoride-hexafluoropropylene copolymer
25014-41-9, Poly(acrylonitrile)
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(matrix; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole
RL: MOA (Modifier or additive use); USES (Uses)
(mixture with polyaniline; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 103-63-9, Phenethyl bromide
RL: RCT (Reactant); RACT (Reactant or reagent)
(nitration; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 75-05-8, Acetonitrile 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-87-5, Dimethoxymethane 109-99-9, THF 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate 646-06-0, 1,3-Dioxolane 872-50-4, N-Methyl-2-pyrrolidinone 1072-47-5, 4-Methyl-1,3-dioxolane 19836-78-3, 3-Methyl-2-oxazolidinone 51667-26-6, Oxazolidinone
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. solvent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 84-65-1, Anthraquinone 90-94-8, Michler's ketone 93-97-0, Benzoyl benzoate 119-61-9, Benzophenone 120-51-4, Benzyl benzoate 134-85-0, p-Chlorobenzophenone 492-22-8, Thioxanthone 574-09-4, Ethyl benzoin ether 927-07-1, tert-Butyl **peroxy**pivalate 947-19-3, 1-Hydroxycyclohexyl phenyl ketone 2648-61-5, α,α -Dichloroacetophenone 6175-45-7, α,α -Diethoxyacetophenone 6652-28-4, Isopropyl benzoin ether 6652-29-5, Benzoin phenyl ether 7473-98-5, 2-Hydroxy-2-methyl-1-phenyl-1-propanone 24650-42-8, DMPA 27962-49-8 72896-34-5, Chlorothioxanthone 75081-21-9, (Isopropyl)thioxanthone
RL: CAT (Catalyst use); USES (Uses)
(photocuring initiator for polymer **electrolyte**; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 9003-11-6D, Ethylene glycol propylene glycol copolymer, di-Bu ether-terminated 24991-55-7, Polyethylene glycol dimethyl ether 24991-61-5, Polypropylene glycol dimethyl ether 26142-30-3, Polypropylene glycol diglycidyl ether 26403-72-5, Polyethylene glycol diglycidyl ether 31885-97-9, Polyethylene glycol dibutyl ether 53609-62-4, Polyethylene glycol diethyl ether 60314-50-3, Polyethylene glycol dipropyl ether 106392-12-5D, Block polyethylene-polypropylene glycol, di-Bu ether-terminated
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(polymer **electrolyte**; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 99-35-4, 1,3,5-Trinitrobenzene

- RL: RCT (Reactant); RACT (Reactant or reagent)
(reduction; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 100-13-0P, 4-Nitrostyrene 13556-15-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reduction; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 9003-07-0, Polypropylene
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(separator; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 124-63-0, Methanesulfonyl chloride 358-23-6, Triflic anhydride
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonylation agent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 96-50-4, 2-Aminothiazole 109-12-6, 2-Aminopyrimidine 141-86-6, 2,6-Diaminopyridine 328-74-5, 3,5-Bis(trifluoromethyl)aniline 670-96-2, 2-Phenylimidazole 7673-09-8 31230-17-8, 3-Amino-5-methylpyrazole 33228-45-4, 4-Hexylaniline
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonylation, cyanation, chlorination, trifluoroacetylation; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 108-72-5P, 1,3,5-Triaminobenzene 1520-21-4P, 4-Aminostyrene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(sulfonylation, cyanation, chlorination, trifluoroacetylation; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 108-73-6, 1,3,5-Benzenetriol
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonylation; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- IT 68602-57-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(trifluoroacetylation agent; anion receptor comprising aromatic amines substituted with electron withdrawing groups and **electrolyte** using the same for alkali metal batteries)
- REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L54 ANSWER 2 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2007:197873 HCAPLUS Full-text
DOCUMENT NUMBER: 146:255355
TITLE: Mesoporous carbon composite, method of preparing the same, and fuel cell using the mesoporous carbon composite
INVENTOR(S): Pak, Chan-Ho; Choi, Yeong-Suk; Chang, Hyuk; Joo, Sang-Hoon
PATENT ASSIGNEE(S): Samsung Sdi Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 16pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007042268	A1	20070222	US 2006-443165	20060531
KR 2007021846	A	20070223	KR 2005-76542	20050820
CN 1917258	A	20070221	CN 2006-10087647	20060531
JP 2007055882	A	20070308	JP 2006-152551	20060531
PRIORITY APPLN. INFO.:			KR 2005-76542	A 20050820

AB A mesoporous carbon composite includes mesoporous carbon having mesopores; a conductive polymer coated on only an outer surface of the mesoporous carbon; and an organic **electrolyte** comprising a **lithium salt** and an organic solvent. The mesoporous carbon composite may be prepared by impregnating an ordered mesoporous silica (OMS) with a carbon precursor mixture comprising a carbon precursor, an acid, and a solvent; heat-treating and carbonizing the impregnated OMS to form an OMS-carbon composite; mixing the OMS-carbon composite with a monomer that forms a conductive polymer and a solvent to provide a surface of the OMS-carbon composite with the monomer that forms a conductive polymer; polymerizing the monomer to obtain a conductive polymer-coated OMS-carbon composite; removing the OMS from the conductive polymer-coated OMS-carbon composite to obtain a conductive polymer-coated mesoporous carbon; and doping the conductive polymer-coated mesoporous carbon with an organic **electrolyte** comprising a **lithium salt** and an organic solvent to form the mesoporous carbon composite. A supported catalyst contains the mesoporous carbon composite, and a fuel cell uses an electrode containing the mesoporous carbon composite.

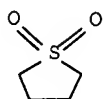
IT 126-33-0, Sulfolane

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; mesoporous carbon composite, method of preparing the same, and fuel cell using the mesoporous carbon composite)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



INCL 429213000; 429232000; 252182100; 502159000; 502180000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 7722-84-1, Hydrogen **peroxide**, reactions

RL: RGT (Reagent); RACT (Reactant or reagent)

(polymerization initiator; mesoporous carbon composite, method of preparing the same, and fuel cell using the mesoporous carbon composite)

IT 110-71-4 126-33-0, Sulfolane 73506-93-1, Diethoxyethane

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; mesoporous carbon composite, method of preparing the same, and fuel cell using the mesoporous carbon composite)

L54 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:735154 HCAPLUS Full-text

DOCUMENT NUMBER: 143:196855

TITLE: Protected active metal electrode and battery cell structures with nonaqueous interlayer architecture

INVENTOR(S): Visco, Steven J.; Katz, Bruce D.; Nimon, Yevgeniy S.; De Jonghe, Lutgard C.

PATENT ASSIGNEE(S): Polyplus Battery Company, USA

SOURCE: U.S. Pat. Appl. Publ., 20 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005175894	A1	20050811	US 2004-824944	20040414
US 7282295	B2	20071016		
AU 2004316638	A1	20050909	AU 2004-316638	20041008
CA 2555637	A1	20050909	CA 2004-2555637	20041008
WO 2005083829	A2	20050909	WO 2004-US33371	20041008
WO 2005083829	A3	20060504		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1714349	A2	20061025	EP 2004-794655	20041008
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
CN 1938895	A	20070328	CN 2004-80042697	

BR 2004018500	A	20070515	BR 2004-18500	200410 08
JP 2007524204	T	20070823	JP 2006-552102	200410 08
MX 2006PA09007	A	20061020	MX 2006-PA9007	200410. 08
KR 2007004670	A	20070109	KR 2006-717692	200608 07
PRIORITY APPLN. INFO.:			US 2004-542532P	P 200402 06
			US 2004-548231P	P 200402 27
			US 2004-824944	A 200404 14
			WO 2004-US33371	W 200410 08

AB The invention concerns active metal and active metal intercalation electrode structures and battery cells having ionically conductive protective architecture including an active metal (e.g., lithium) conductive impervious layer separated from the electrode (anode) by a porous separator impregnated with a non-aqueous **electrolyte** (anolyte). This protective architecture prevents the active metal from deleterious reaction with the environment on the other (cathode) side of the impervious layer, which may include aqueous or nonaq. liquid **electrolytes** (catholytes) and/or a variety electrochem. active materials, including liquid, solid and gaseous oxidizers. Safety additives and designs that facilitate manufacture are also provided.

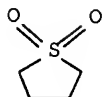
IT 126-33-0, Sulfolane

RL: DEV (Device component use)

(protected active metal electrode and battery cell structures
with nonaq. interlayer architecture)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M004-60

INCL 429212000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

IT Primary **batteries**
Secondary **batteries**

(lithium; protected active metal electrode and battery cell structures with nonaq. interlayer architecture)

- IT Battery anodes
 Battery electrolytes
 Ceramics
 Gelation agents
 Glass ceramics
 Ionic liquids
 Oxidizing agents
 Polymerization catalysts
 Primary batteries
 Primary battery separators
 Seawater
 Secondary batteries
 (protected active metal electrode and battery cell structures with nonaq. interlayer architecture)
- IT 7446-09-5, Sulfur dioxide, processes 7632-00-0, Sodium nitrite 7722-84-1, Hydrogen peroxide, processes 7757-83-7, Sodium sulfite 7758-09-0, Potassium nitrite 7782-44-7, Oxygen, processes 10102-44-0, Nitrogen dioxide, processes 10117-38-1, Potassium sulfite 14915-07-2, Peroxide
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (protected active metal electrode and battery cell structures with nonaq. interlayer architecture)
- IT 64-19-7, Acetic acid, uses 71-47-6, Formate, uses 79-20-9, Methyl acetate 96-47-9, 2-Methyltetrahydrofuran 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 546-89-4, Lithium acetate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1301-96-8, Silver oxide (AgO) 1310-65-2, Lithium hydroxide 1332-37-2, Iron oxide, uses 1335-25-7, Lead oxide 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-44-0, Carbon, uses 7440-55-3, Gallium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7447-41-8, Lithium chloride, uses 7550-35-8, Lithium bromide 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7719-09-7, Thionyl chloride 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 11129-60-5, Manganese oxide 12026-04-9, Nickel hydroxide oxide NiOOH 12124-97-9, Ammonium bromide 12125-02-9, Ammonium chloride, uses 14283-07-9, Lithium tetrafluoroborate 16749-13-6D, Phosphonium, compound 16969-45-2D, Pyridinium, derivs. 17009-90-4D, Imidazolium, derivs. 21324-40-3, Lithium hexafluorophosphate 25067-64-5 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 74432-42-1, Lithium polysulfide 90076-65-6 132843-44-8 155371-19-0, 1-Ethyl-3-methylimidazolium hexafluorophosphate 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosphate 244193-50-8, 1-Hexyl-3-methylimidazolium tetrafluoroborate 328090-25-1, 1-Ethyl-3-methylimidazolium tosylate
 RL: DEV (Device component use)
 (protected active metal electrode and battery cell structures with nonaq. interlayer architecture)

ACCESSION NUMBER: 2005:155490 HCAPLUS Full-text
 DOCUMENT NUMBER: 142:264348
 TITLE: **Electrolyte** for rechargeable
 lithium battery
 INVENTOR(S): Lee, Yong-Beom; Song, Eui-Hwan; Kim, Kwang-Sup;
 Earmme, Tae-Shik; Kim, You-Mee
 PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea
 SOURCE: Eur. Pat. Appl., 32 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. . -----	DATE
EP 1508934	A1	20050223	EP 2004-90320	200408 19
EP 1508934	B1	20070228		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
KR 2005020067	A	20050304	KR 2003-57716	200308 20
KR 2005078443	A	20050805	KR 2004-5874	200401 29
AT 355629	T	20060315	AT 2004-90320	200408 19
JP 2005072003	A	20050317	JP 2004-241017	200408 20
US 2005084765	A1	20050421	US 2004-924248	200408 20
CN 1612405	A	20050504	CN 2004-10098111	200408 20
PRIORITY APPLN. INFO.:			KR 2003-57716	A 200308 20
			KR 2004-5874	A 200401 29

OTHER SOURCE(S): MARPAT 142:264348
 AB Disclosed is an **electrolyte** for a rechargeable **lithium battery**, including a mixture of organic solvents including a cyclic solvent and a nitrile-based solvent represented by the formula R-C.tplbond.N (R is from C1-10 aliphatic hydrocarbons, C1-10 halogenated aliphatic hydrocarbons, C6-10 aromatic hydrocarbons, and C6-10 halogenated aromatic hydrocarbons) and a **lithium salt**.
 IT 94-36-0, Dibenzoyl **peroxide**, processes
 105-74-8, Dilauroyl **peroxide** 3006-82-4,
 tert-Butyl **peroxy**-2-ethyl hexanoate 4419-11-8,
 2,2'-Azobis(2,4-dimethylvaleronitrile) 15520-11-3

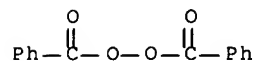
, Di(4-tert-butylcyclohexyl)peroxydicarbonate

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(electrolyte for rechargeable lithium battery)

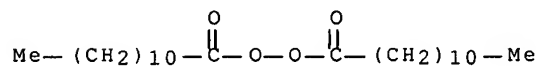
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



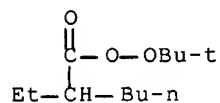
RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



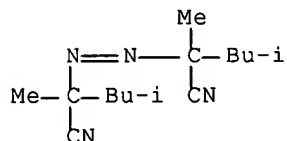
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



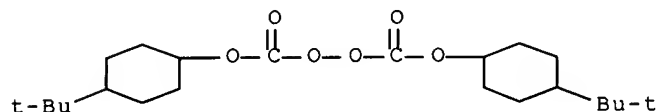
RN 4419-11-8 HCAPLUS

CN Pentanenitrile, 2,2'-(1,2-diazenediyl)bis[2,4-dimethyl- (CA INDEX NAME)]

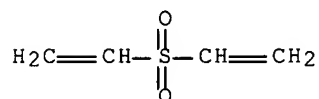


RN 15520-11-3 HCAPLUS

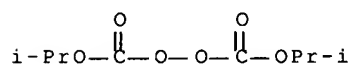
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



IT 77-77-0, DiVinyl sulfone 105-64-6, Di-
isopropylperoxydicarbonate
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte for rechargeable lithium
 battery)
 RN 77-77-0 HCAPLUS
 CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



RN 105-64-6 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX
 NAME)



IC ICM H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38
 ST **electrolyte rechargeable lithium battery**
 IT Nitriles, uses
 RL: DEV (Device component use); USES (Uses)
 (aliphatic, C1-10; **electrolyte** for rechargeable
 lithium battery)
 IT Nitriles, uses
 RL: DEV (Device component use); USES (Uses)
 (aromatic, C6-10; **electrolyte** for rechargeable
 lithium battery)
 IT Battery **electrolytes**
 (electrolyte for rechargeable lithium
 battery)
 IT Lactones
 RL: DEV (Device component use); USES (Uses)
 (electrolyte for rechargeable lithium
 battery)
 IT Secondary **batteries**
 (lithium; **electrolyte** for rechargeable
 lithium battery)
 IT **Peroxides**, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (organic; **electrolyte** for rechargeable lithium
 battery)
 IT 94-36-0, Dibenzoyl peroxide, processes
 105-74-8, Dilauroyl peroxide 107-71-1, tert-
 Butylperoxy acetate 109-13-7, tert-
 Butylperoxyisobutyrate 110-22-5, Diacetyl peroxide
 614-45-9, tert-Butylperoxy benzoate 686-31-7, tert-
 Amylperoxy 2-ethylhexanoate 927-07-1, tert-Butyl

peroxypivalate 2372-21-6, **tert-Butyl peroxy**
isopropyl carbonate 3006-82-4, **tert-Butyl peroxy**
 -2-ethyl hexanoate 3851-87-4, **Bis(3,5,5-trimethyl)hexanoyl**
peroxide 4419-11-8, 2,2'-**Azobis**
 (2,4-dimethylvaleronitrile) 13122-18-4, **tert-Butylperoxy**
 3,5,5-trimethylhexanoate 15518-51-1, Diethylene glycol bis(**tert-**
butylperoxycarbonate) 15520-11-3,
 Di(4-**tert-butylcyclohexylperoxydicarbonate** 25551-14-8
 26748-38-9, **tert-Butyl peroxy neoheptanoate** 26748-41-4,
tert-Butyl peroxy neodecanoate 29240-17-3, **tert-Amyl**
peroxypivalate 34443-12-4, **tert-Butyl peroxy**
 2-ethylhexyl carbonate 36536-42-2, 1,6-Hexanediol bis(**tert-butyl**
peroxycarbonate) 51240-95-0, 1,1,3,3-Tetramethylbutyl
peroxy neodecanoate 51938-28-4, **tert-**
Hexylperoxypivalate 52238-68-3, **Bis(3-methoxybutyl)**
peroxydicarbonate 68860-54-8 96989-15-0 845717-44-4
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)

(electrolyte for rechargeable lithium
 battery)

IT 79-20-9, Methyl acetate 96-48-0, γ -Butyrolactone 96-49-1,
 Ethylene carbonate 105-58-8, Diethyl carbonate 106-70-7, Methyl
 hexanoate 107-12-0, Propionitrile 107-31-3, Methyl formate
 108-29-2, γ -Valerolactone 108-32-7, Propylene carbonate
 109-74-0, Butyronitrile 110-59-8, Valeronitrile 124-12-9,
 Caprylonitrile 140-29-4, Phenylacetoneitrile 141-78-6, Ethyl
 acetate, uses 326-62-5, 2-FluoroPhenylacetoneitrile 394-47-8,
 2-Fluorobenzonitrile 459-22-3, 4-FluoroPhenylacetoneitrile
 502-44-3, ϵ -Caprolactone 542-28-9, δ -Valerolactone
 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate
 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate
 629-08-3, Heptanenitrile 630-18-2, **tert-Butyl cyanide** 695-06-7,
 γ -Caprolactone 766-05-2, Cyclohexanecarbonitrile
 1194-02-1, 4-Fluorobenzonitrile 4254-02-8,
 Cyclopentanecarbonitrile 4437-85-8, Butylene carbonate
 7439-93-2D, **Lithium, salt** 7791-03-9, **Lithium**
perchlorate 12190-79-3, Cobalt lithium oxide (CoLiO₂)
 14024-11-4, **Lithium tetrachloroaluminate** 14283-07-9, **Lithium**
tetrafluoroborate 18424-17-4, **Lithium hexafluoroantimonate**
 21324-40-3, **Lithium hexafluorophosphate** 29935-35-1, **Lithium**
hexafluoroarsenate 33454-82-9, **Lithium triflate** 57381-51-8,
 4-Chloro-2-fluoro-benzonitrile 60702-69-4, 2-Chloro-4-fluoro-
 benzonitrile 90076-65-6 90240-74-7 127813-79-0 132843-44-8
 179802-95-0, Cobalt lithium manganese nickel oxide
 (Co_{0.1}LiMn_{0.1}Ni_{0.8}O₂) 845717-45-5

RL: DEV (Device component use); USES (Uses)

(electrolyte for rechargeable lithium
 battery)

IT 75-05-8, Acetonitrile, uses 77-77-0, DiVinyl sulfone
 105-64-6, Di-isopropylperoxydicarbonate
 628-73-9, Capronitrile 872-36-6, Vinylene carbonate 3741-38-6,
 Ethylene sulfite 16111-62-9, Bis(2-ethylhexyl)
peroxydicarbonate 22537-94-6 71331-99-2,
 Bis(4-**tert-butylcyclohexylperoxycarbonate** 114435-02-8,
 Fluoroethylene carbonate

RL: MOA (Modifier or additive use); USES (Uses)

(electrolyte for rechargeable lithium
 battery)

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L54 ANSWER 5 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:1042417 HCAPLUS Full-text

DOCUMENT NUMBER: 142:300815

TITLE: New lithium salts for
rechargeable battery
electrolytes

AUTHOR(S): Mandal, Braja; Sooksimuang, Thanasat; Griffin,
Brian; Padhi, Akshaya; Filler, Robert

CORPORATE SOURCE: Department of Biological, Chemical and Physical
Sciences, Illinois Institute of Technology,
Chicago, IL, 60616, USA

SOURCE: Solid State Ionics (2004), 175(1-4), 267-272
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

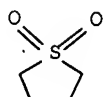
AB The facile syntheses of new, low-cost, non-fluorinated, sulfonyl-substituted
imide and methide lithium salts are described. These salts, prepared for
potential application in lithium ion rechargeable battery electrolytes,
exhibit very good electrochem. and thermal behavior. While the salts are very
soluble in DMSO and sulfolane, their solubilities in standard carbonate
solvents is less than adequate for battery operations. Mol. modifications to
improve solubility are in progress.

IT 126-33-0, Sulfolane

RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(new lithium salts for rechargeable
battery electrolytes)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)

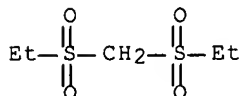


IT 1070-92-4P 1750-62-5P 4610-99-5P
90325-14-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation);
PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable
battery electrolytes)

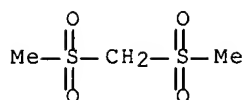
RN 1070-92-4 HCAPLUS

CN Ethane, 1,1'-[methylenebis(sulfonyl)]bis- (CA INDEX NAME)



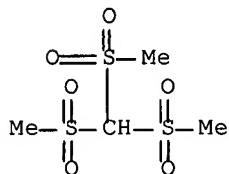
RN 1750-62-5 HCAPLUS

CN Methane, bis(methylsulfonyl)- (CA INDEX NAME)



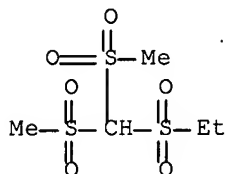
RN 4610-99-5 HCAPLUS

CN Methane, tris(methylsulfonyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 90325-14-7 HCAPLUS

CN Ethane, [[bis(methylsulfonyl)methyl]sulfonyl]- (9CI) (CA INDEX NAME)



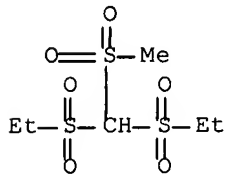
IT 59099-56-8P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(new lithium salts for rechargeable battery electrolytes)

RN 59099-56-8 HCAPLUS

CN Ethane, 1,1'-[[[(methylsulfonyl)methylene]bis(sulfonyl)]bis- (9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 76

ST synthesis lithium salt imide methide secondary

- battery electrolyte cond
- IT Stability
(hydrolytic, thermal, electrochem., of lithium imide salts; new lithium salts for rechargeable battery electrolytes)
- IT Secondary batteries
(lithium; new lithium salts for rechargeable battery electrolytes)
- IT Alkylation
Battery electrolytes
Lithiation
(new lithium salts for rechargeable battery electrolytes)
- IT Sulfones
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable battery electrolytes)
- IT Solubility
(of lithium imide salts in carbonate solvents, DMSO, and sulfolane; new lithium salts for rechargeable battery electrolytes)
- IT Electric impedance
(of lithium salt solns. in DMSO; new lithium salts for rechargeable battery electrolytes)
- IT Electric conductivity
(of salts in solvents; new lithium salts for rechargeable battery electrolytes)
- IT Imides
Sulfonic acids, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(sulfonimides; new lithium salts for rechargeable battery electrolytes)
- IT Decomposition
(temperature of; new lithium salts for rechargeable battery electrolytes)
- IT 67-68-5, DMSO, uses 96-49-1, Ethylene carbonate 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(new lithium salts for rechargeable battery electrolytes)
- IT 21324-40-3, Lithium hexafluorophosphate
RL: PRP (Properties)
(new lithium salts for rechargeable battery electrolytes)
- IT 1070-92-4P 1750-62-5P 4610-99-5P 90325-14-7P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new lithium salts for rechargeable battery electrolytes)
- IT 59099-56-8P 133395-17-2P 259106-93-9P 847684-90-6P 847684-93-9P 847684-94-0P 847684-96-2P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(new lithium salts for rechargeable battery electrolytes)

IT 75-08-1, Ethanethiol 110-88-3, 1,3,5-Trioxane, reactions
 124-63-0, Methanesulfonyl chloride 420-04-2, Cyanamide 594-44-5,
 Ethanesulfonyl chloride 598-30-1, sec-Butyl Lithium
 917-54-4, Methyl lithium 1310-65-2, Lithium hydroxide
 1618-26-4, Bis(methylthio)methane 7646-69-7, Sodium hydride (NaH)
 7722-84-1, Hydrogen peroxide, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (new lithium salts for rechargeable
 battery electrolytes)
 IT 15873-42-4P, Imidodisulfuryl chloride 34782-37-1P 34782-38-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (new lithium salts for rechargeable
 battery electrolytes)

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L54 ANSWER 6 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 ACCESSION NUMBER: 2004:161244 HCAPLUS Full-text
 DOCUMENT NUMBER: 140:202430
 TITLE: Salts of pentacyclic or tetrapentalene derived
 anions, and their uses as ionic conductive
 materials
 INVENTOR(S): Armand, Michel; Michot, Christophe; Gauthier,
 Michel; Choquette, Yves
 PATENT ASSIGNEE(S): Hydro-Quebec, Can.; Centre National De La
 Recherche Scientifique (CNRS)
 SOURCE: Eur. Pat. Appl., 33 pp.
 CODEN: EPXXDW
 DOCUMENT TYPE: Patent
 LANGUAGE: French
 FAMILY ACC. NUM. COUNT: 5
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1391952	A2	20040225	EP 2003-292436	199712 30
R: DE, FR, GB, IT				
CA 2194127	A1	19980630	CA 1996-2194127	199612 30
CA 2199231	A1	19980905	CA 1997-2199231	199703 05
EP 850933	A1	19980701	EP 1997-403188	199712 30
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
CA 2248304	A1	19980709	CA 1997-2248304	199712 30
CA 2248304	C	20071113		
EP 889863	A2	19990113	EP 1997-951051	199712 30

EP 889863	B1	20030507		
R: DE, FR, GB, IT				
EP 890176	A1	19990113	EP 1997-951052	199712 30
EP 890176	B1	20010620		
R: DE, FR, GB, IT				
JP 2000508114	T	20000627	JP 1998-529517	199712 30
JP 2000508346	T	20000704	JP 1998-529516	199712 30
JP 2000508676	T	20000711	JP 1998-529514	199712 30
JP 2000508677	T	20000711	JP 1998-529515	199712 30
JP 2000508678	T	20000711	JP 1998-529518	199712 30
JP 2002514245	T	20020514	JP 1998-529513	199712 30
US 6120696	A	20000919	US 1998-125792	199808 28
US 6171522	B1	20010109	US 1998-101811	199811 19
US 6333425	B1	20011225	US 1998-101810	199811 19
US 6228942	B1	20010508	US 1998-125798	199812 02
US 6395367	B1	20020528	US 1998-125799	199812 02
US 6319428	B1	20011120	US 1998-125797	199812 03
US 6365068	B1	20020402	US 2000-609362	200006 30
US 6576159	B1	20030610	US 2000-638793	200008 09
US 2001024749	A1	20010927	US 2001-826941	200104 06
US 6506517	B2	20030114		
US 2002009650	A1	20020124	US 2001-858439	200105 16
US 2002102380	A1	20020801	US 2002-107742	200203 27
US 6835495	B2	20041228		

US 2003052310	A1	20030320	US 2002-253035	200209 24
US 2003066988	A1	20030410	US 2002-253970	200209 24
US 2005074668	A1	20050407	US 2004-789453	200402 27
US 2005123831	A1	20050609	US 2004-926283	200408 25
PRIORITY APPLN. INFO.:			CA 1996-2194127	A 199612 30
			CA 1997-2199231	A 199703 05
			EP 1997-403188	A3 199712 30
			WO 1997-CA1008	W 199712 30
			WO 1997-CA1009	W 199712 30
			WO 1997-CA1010	W 199712 30
			WO 1997-CA1011	W 199712 30
			WO 1997-CA1012	W 199712 30
			WO 1997-CA1013	W 199712 30
			US 1998-101810	A3 199811 19
			US 1998-101811	A3 199811 19
			US 1998-125798	A3 199812 02

US 1998-125799	A3	199812 02
US 1998-125797	A1	199812 03
US 2000-638793	A1	200008 09
US 2001-858439	A1	200105 16
US 2002-107742	A1	200203 27

AB This invention describes ionic compds. where the anionic charge is delocalized. One compound of the invention contains an anionic part associated with at least one mono- or multivalent cationic part M^{m+} , in a number sufficient to ensure electronic neutrality of the material. M can be a hydronium, nitrosyl NO^+ , an ammonium NH_4^+ , a metallic cation with valence m, an organic cation having a valence m, or an organometallic cation having valence m. The anionic charge is carried by a new pentacyclic moiety or derivative of tetrapentalene carrying electroattractive substituents. The compds. are used notably for ionic conduction, electronic conductors, dyes and colorants, and catalysts for diverse chemical reactions. They can also be used as **electrolytes** in fuel cells and batteries.

IT 210469-91-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

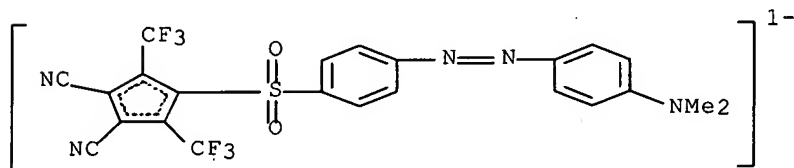
RN 210469-91-3 HCAPLUS

CN 1-Butanaminium, N,N,N-tributyl-, salt with 4-[[4-[[4-(dimethylamino)phenyl]azo]phenyl]sulfonyl]-3,5-bis(trifluoromethyl)-1,3-cyclopentadiene-1,2-dicarbonitrile (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 210469-90-2

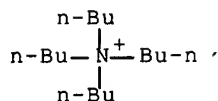
CMF C23 H14 F6 N5 O2 S



CM 2

CRN 10549-76-5

CMF C16 H36 N



IT 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid)

56512-49-3, 4-(Dimethylamino)azobenzene

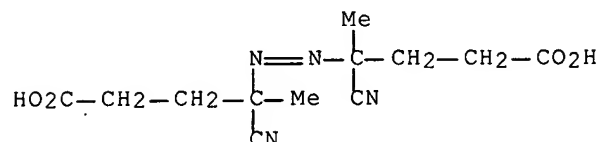
-4'-sulfonyl chloride

RL: RCT (Reactant); RACT (Reactant or reagent)

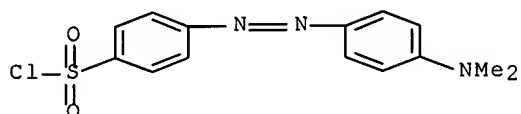
(salts of pentacyclic or tetrapentalene derived anions,
and their uses as ionic conductive materials)

RN 2638-94-0 HCAPLUS

CN Pentanoic acid, 4,4'-(1,2-diazenediyl)bis[4-cyano- (CA INDEX NAME)



RN 56512-49-3 HCAPLUS

CN Benzenesulfonyl chloride, 4-[2-[4-(dimethylamino)phenyl]diazenyl]-
(CA INDEX NAME)

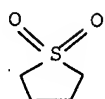
IT 126-33-0D, Sulfolane, derivs.

RL: NUU (Other use, unclassified); USES (Uses)

(solvent for title compds.; salts of pentacyclic or
tetrapentalene derived anions, and their uses as ionic conductive
materials)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M006-16

ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

- Section cross-reference(s): 27, 28, 29, 35, 76
- ST pentacyclic tetrapentalene salt charge delocalized anion ionic conduction; alkali alk earth transition metal salt heterocyclic **electrolyte** polymer; electrochem cell fuel polyelectrolyte cond soly catalysis fluoropolymer polysiloxane
- IT Optical absorption
(by polymer **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Carbon black, uses
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(composite electrodes with soft polymer or LiCoO₂ and polymer gel **electrolytes**, or with acetylene black, VO₂ and PEO; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Polyoxyalkylenes, processes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(**electrolyte** complexes with **lithium salts**, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Phosphates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(iron, manganese, and **lithium** -containing; **salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Open circuit potential
(of dye-sensitized solar cells with imidazolium-triazole-iodide **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Ionic conductivity
(of **lithium salts** in polymer **electrolytes** and polymer gel **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Cyclic voltammetry
(of secondary battery cells with polymer gel **electrolytes**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Silicates, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(phospho-, iron, manganese, and **lithium** -containing; **salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)
- IT Aldol condensation catalysts
Antistatic agents
Coloring materials
Corrosion inhibitors
Dyes
Electron delocalization
Esterification
Friedel-Crafts reaction catalysts
Fuel cell separators
Heterojunction solar cells
Ionic liquids
Michael reaction catalysts
Plasticizers

Polyelectrolytes
 Polymer **electrolytes**
 Polymerization catalysts
 Solubility
 Substitution reaction, nucleophilic
 Surfactants

(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT Phosphates, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(silico-, iron, manganese, and **lithium** -containing; **salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 25322-68-3, Polyethylene oxide

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(**electrolyte** complexes with **lithium salts**, carbon blacks, (1,2,3-triazolium) ionic liqs., and other materials; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210289-62-6P

RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)

(**electrolyte**, ionic liquid; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate

RL: PRP (Properties)

(in gel polymer **electrolyte**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 107-13-1, Acrylonitrile, reactions

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)

(in gel polymer **electrolyte**; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 661461-54-7P

RL: PRP (Properties); PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)

(pure and polymer **electrolytes** with polyethylene oxide; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 7580-67-8, **Lithium** hydride

RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)

(**salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 12190-79-3, Cobalt **lithium** oxide (CoLiO₂)

RL: DEV (Device component use); PRP (Properties); USES (Uses)

(**salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 289-06-5D, Thiadiazole, anionic derivs. 289-95-2D, Pyrimidine, anionic derivs. 290-37-9D, Pyrazine, anionic derivs. 7439-93-2, **Lithium**, uses 11120-54-0D, Oxadiazole, anionic derivs.

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(**salts** of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 210469-91-3P 661461-52-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 76-05-1, reactions 78-94-4, Methyl vinyl ketone, reactions 94-41-7 98-88-4, Benzoyl chloride 100-52-7, Benzaldehyde, reactions 100-66-3, Anisole, reactions 102-52-3, 1,1,3,3-Tetramethoxypropane 106-20-7, Di-2-ethylhexylamine 108-24-7, Acetic anhydride 109-72-8, Butyllithium, reactions 110-61-2, Succinic dinitrile 112-76-5, Stearic acid chloride 121-44-8, Triethylamine, reactions 143-33-9, Sodium cyanide 144-55-8, Sodium bicarbonate, reactions 303-04-8, 2,3-Dichloro-Hexafluoro-2-butene 326-90-9, 4,4,4-Trifluoro-1-(2-furyl)-1,3-butanedione 326-91-0 375-72-4, Perfluorobutanesulfonyl fluoride 407-38-5, 2,2,2-Trifluoroethyl trifluoroacetate 421-83-0, Trifluoromethanesulfonyl chloride 497-19-8, Sodium carbonate, reactions 538-75-0, Dicyclohexylcarbodiimide 542-92-7, Cyclopentadiene, reactions 554-13-2, Lithium carbonate 584-08-7, Potassium carbonate 676-58-4, Methylmagnesium chloride 677-25-8, Ethenesulfonyl fluoride 692-50-2 693-13-0, 1,3-Diisopropylcarbodiimide 764-93-2, 1-Decyne 765-12-8, Triethylene glycol divinyl ether 917-70-4, Lanthanum acetate 937-14-4, 3-Chloroperoxybenzoic acid 1000-84-6 1068-57-1, Acetylhydrazide 1122-28-7, 4,5-Dicyanoimidazole 1310-58-3, Potassium hydroxide, reactions 1522-22-1, Hexafluoroacetylacetone 1643-19-2, Tetrabutylammonium bromide 1648-99-3 2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2582-30-1, 1-Aminoguanidine bicarbonate 2633-67-2, 4-Styrenesulfonyl chloride 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 2893-78-9, Dichloroisocyanuric acid, sodium salt 3804-23-7, Scandium acetate 4546-95-6, 1,2,3-Triazole-4,5-dicarboxylic acid 7447-41-8, Lithium chloride, reactions 7647-01-0, Hydrochloric acid, reactions 7647-14-5, Sodium chloride, reactions 7664-39-3, Hydrofluoric acid, reactions 7757-82-6, Sodium sulfate, reactions 7758-09-0, Potassium nitrite 7782-50-5, Chlorine, reactions 7789-23-3, Potassium fluoride 9002-92-0, Brij 30 13360-57-1 13637-84-8, Chlorosulfonyl fluoride 13781-67-4, 2-(3-Thienyl)ethanol 14635-75-7, Nitrosonium tetrafluoroborate 16090-14-5 17455-13-9, 18-Crown-6 17587-22-3, 1,1,1,2,2,3,3-Heptafluoro-7,7-dimethyl-4,6-octanedione 20583-66-8, 1,1,1,5,5,6,6,7,7,7-Decafluoro-2,4-Heptanedione 26628-22-8, Sodium azide 27070-49-1, 1,2,3-Triazole 31469-15-5, 1-Methoxy-1-(trimethylsilyloxy)-2-methyl-1-propene 39262-22-1 39377-49-6, Copper cyanide 53188-07-1, Trolox 56512-49-3, 4-(Dimethylamino)azobenzene-4'-sulfonyl chloride 65039-09-0, 1-Ethyl-3-methyl-1H-imidazolium chloride 66051-48-7 77968-17-3 81850-46-6 81850-47-7 89183-45-9, Polyaniline hydrochloride 210049-00-6 210289-26-2 210289-55-7 210469-93-5 661461-58-1 661461-61-6

RL: RCT (Reactant); RACT (Reactant or reagent)

(salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 126-33-0D, Sulfolane, derivs.

RL: NUU (Other use, unclassified); USES (Uses)

(solvent for title compds.; salts of pentacyclic or tetrapentalene derived anions, and their uses as ionic conductive materials)

IT 156118-35-3DP, 2-(5-cyano-1,3,4-triazole)-4,4-difluorobutyl-, lithium salt

RL: PUR (Purification or recovery); SPN (Synthetic preparation);
 PREP (Preparation)
 (surfactant and antistatic; salts of pentacyclic or
 tetrapentalene derived anions, and their uses as ionic conductive
 materials)

L54 ANSWER 7 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:119843 HCAPLUS Full-text

DOCUMENT NUMBER: 140:149224

TITLE: Nonaqueous **electrolytic** solution with
 improved safety for **lithium**
battery

INVENTOR(S): Kim, Jun-ho; Lee, Ha-young; Choy, Sang-hoon;
 Kim, Ho-sung

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 12 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

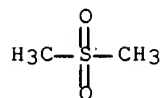
PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2004029018	A1	20040212	US 2003-637554	200308 11
US 7105250	B2	20060912		
KR 2004015420	A	20040219	KR 2002-47510	200208 12
JP 2004079532	A	20040311	JP 2003-290946	200308 08
CN 1495960	A	20040512	CN 2003-158672	200308 12
PRIORITY APPLN. INFO.:			KR 2002-47510	A 200208 12

AB A nonaq. **electrolytic** solution and a **lithium battery** employing the same
 include a **lithium salt**, an organic solvent, and a halogenated benzene compound
 The use of the nonaq. **electrolytic** solution causes formation of a polymer by
 oxidative decomposition of the **electrolytic** solution even if a sharp voltage
 increase occurs due to overcharging of the battery, leading to consumption of
 an overcharge current, thus protecting the battery.

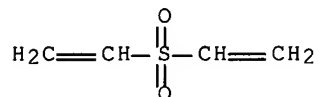
IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone
 94-36-0, **Benzoylperoxide**, uses 105-64-6,
 Diisopropyl **peroxy** dicarbonate 105-74-8, Lauroyl
peroxide 126-33-0, Tetramethylene sulfone
 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone
 1561-49-5, Dicyclohexyl **peroxy** dicarbonate
 1712-87-4, m-Toluoyle **peroxide** 3006-82-4,
 tert-**Butylperoxy**-2-ethylhexanoate 14666-78-5
 15520-11-3, Bis(4-tert-butylcyclohexyl)
peroxydicarbonate 28452-93-9, Butadiene sulfone
 32752-09-3, Isobutyl **peroxide** 92177-99-6
 , 3,3,5-Trimethylhexanoyl**peroxide**

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. **electrolytic** solution with improved safety for
lithium battery)

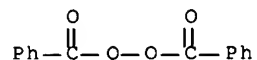
RN 67-71-0 HCAPLUS
 CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



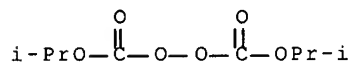
RN 77-77-0 HCAPLUS
 CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



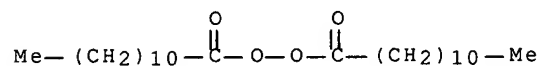
RN 94-36-0 HCAPLUS
 CN Peroxide, dibenzoyl (CA INDEX NAME)



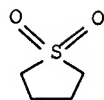
RN 105-64-6 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



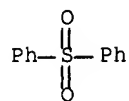
RN 105-74-8 HCAPLUS
 CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



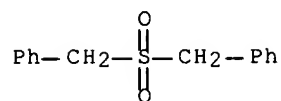
RN 126-33-0 HCAPLUS
 CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



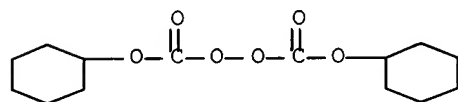
RN 127-63-9 HCAPLUS
 CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



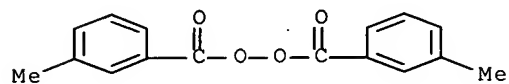
RN 620-32-6 HCAPLUS
 CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



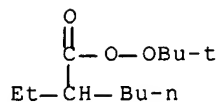
RN 1561-49-5 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



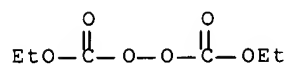
RN 1712-87-4 HCAPLUS
 CN Peroxide, bis(3-methylbenzoyl) (CA INDEX NAME)



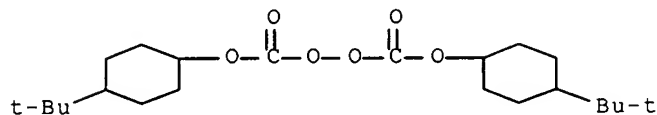
RN 3006-82-4 HCAPLUS
 CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 14666-78-5 HCAPLUS
 CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS
 CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl]
 ester (CA INDEX NAME)

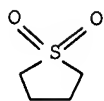


RN 28452-93-9 HCAPLUS
 CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

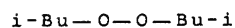
CM 1

CRN 126-33-0

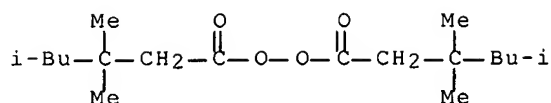
CMF C4 H8 O2 S



RN 32752-09-3 HCAPLUS
 CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



- IC ICM H01M010-40
- INCL 429326000; 429200000; 429340000; 429331000; 429332000
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
- ST **lithium battery** nonaq **electrolyte** soln
improved safety
- IT Esters, uses
Ethers, uses
Hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C1-20; nonaq. **electrolytic** solution with improved safety
for **lithium battery**)
- IT Aromatic hydrocarbons, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C5-20; nonaq. **electrolytic** solution with improved safety
for **lithium battery**)
- IT Secondary batteries
(**lithium**; nonaq. **electrolytic** solution with
improved safety for **lithium battery**)
- IT Battery electrolytes
(nonaq. **electrolytic** solution with improved safety for
lithium battery)
- IT Polyesters, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for
lithium battery)
- IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyhydric; nonaq. **electrolytic** solution with improved
safety for **lithium battery**)
- IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for
lithium battery)
- IT 502-44-3, ϵ -Caprolactone 7439-93-2D, **Lithium**,
salt 12190-79-3, Cobalt lithium oxide colio2
RL: DEV (Device component use); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for
lithium battery)
- IT 126-58-9DP, Dipentaerythritol, derivative
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(nonaq. **electrolytic** solution with improved safety for
lithium battery)
- IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone
71-43-2D, Benzene, halogenated 77-77-0, Vinyl sulfone
94-36-0, **Benzoylperoxide**, uses 96-49-1, Ethylene
carbonate 105-64-6, Diisopropyl peroxy
dicarbonate 105-74-8, Lauroyl peroxide
108-32-7, Propylene carbonate 115-77-5, Pentaerythritol, uses
126-33-0, Tetramethylene sulfone 126-58-9,
DiPentaerythritol 127-63-9, Phenyl sulfone 456-55-3,
Trifluoromethyl phenyl ether 462-06-6, Fluorobenzene

620-32-6, Benzyl sulfone 623-53-0, Ethyl methyl carbonate
 1561-49-5, Dicyclohexyl peroxy dicarbonate
 1712-87-4, m-Toluoyl peroxide 2972-19-2
 3006-82-4, tert-Butylperoxy-2-ethylhexanoate
 9002-88-4, Polyethylene 9003-07-0, Polypropylene
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)
 peroxydicarbonate 21151-56-4, Benzene,
 1-chloro-4-(chloromethoxy)- 21324-40-3, Lithium
 hexafluorophosphate 28452-93-9, Butadiene sulfone
 32752-09-3, Isobutyl peroxide 92177-99-6
 , 3,3,5-Trimethylhexanoylperoxide 130038-50-5,
 2-Propenoic acid, 2-methyl-, ion(1-) homopolymer, uses 651294-25-6
 651294-26-7 651294-27-8

RL: MOA (Modifier or additive use); USES (Uses)
 (nonaq. electrolytic solution with improved safety for
 lithium battery)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN
 THE RE FORMAT

L54 ANSWER 8 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:796195 HCAPLUS Full-text

DOCUMENT NUMBER: 139:294681

TITLE: **Electrolyte for lithium**
battery to reduce overcharge and improve
 electrochemical characteristics

INVENTOR(S): Kim, Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon;
 Kim, Ho-Sung; Noh, Hyeong-Gon

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 19 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2003190529	A1	20031009	US 2003-393294	200303 21
US 7205073	B2	20070417		
KR 2003079310	A	20031010	KR 2002-18264	200204 03
CN 1449070	A	20031015	CN 2003-108529	200303 28
JP 2003297426	A	20031017	JP 2003-100349	200304 03
US 2007212614	A1	20070913	US 2007-714197	200703 06
PRIORITY APPLN. INFO.:			KR 2002-18264	A 200204 03
			US 2003-393294	A3

200303

21

OTHER SOURCE(S): MARPAT 139:294681

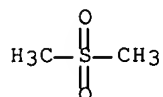
AB An **electrolyte** for a **lithium battery** includes a nonaq. organic solvent, a **lithium salt**, and an additive comprising (a) a compound represented by the formula $[(R1)_nC_6H(6-n+m)(X)_m]$, and (b) a compound selected from the group consisting of a sulfone-based compound, a poly(ester)(meth)acrylate, a polymer of poly(ester)(meth)acrylate, and a mixture thereof: wherein R1 is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where m+n is less than or equal to 6.

IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone
 94-36-0, Benzoyl peroxide, uses 105-64-6
 , Diisopropyl peroxy dicarbonate 105-74-8,
 Lauroyl peroxide 126-33-0, Tetramethylene
 sulfone 127-63-9, Phenyl sulfone 620-32-6,
 Benzyl sulfone 1561-49-5, Dicyclohexyl peroxy
 dicarbonate 1712-87-4, m-Toluoyl peroxide
 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate
 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)
 peroxy dicarbonate 28452-93-9, Butadiene sulfone
 32752-09-3, Isobutyl peroxide 92177-99-6
 , 3,3,5-Trimethylhexanoyl peroxide

RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte for lithium battery to
 reduce overcharge and improve electrochem. characteristics)

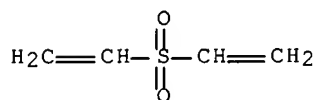
RN 67-71-0 HCAPLUS

CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



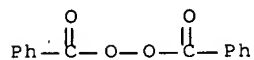
RN 77-77-0 HCAPLUS

CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



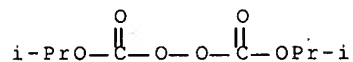
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



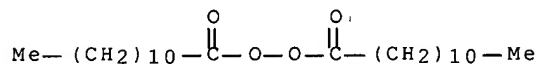
RN 105-64-6 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



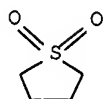
RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



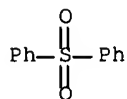
RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



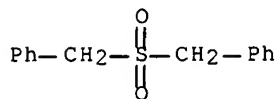
RN 127-63-9 HCAPLUS

CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



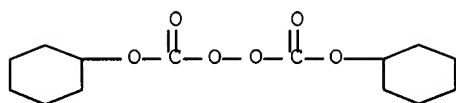
RN 620-32-6 HCAPLUS

CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



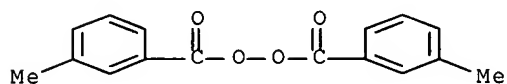
RN 1561-49-5 HCAPLUS

CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



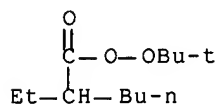
RN 1712-87-4 HCAPLUS

CN Peroxide, bis(3-methylbenzoyl) (CA INDEX NAME)



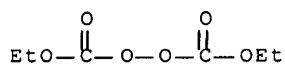
RN 3006-82-4 HCAPLUS

CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



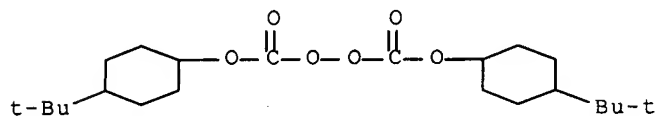
RN 14666-78-5 HCAPLUS

CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



RN 15520-11-3 HCAPLUS

CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



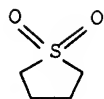
RN 28452-93-9 HCAPLUS

CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

CRN 126-33-0

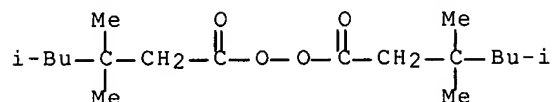
CMF C4 H8 O2 S



RN 32752-09-3 HCAPLUS
 CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
 CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IC ICM H01M006-18
 INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST **lithium battery electrolyte** overcharge
 lowering
 IT **Battery electrolytes**
 (electrolyte for lithium battery to
 reduce overcharge and improve electrochem. characteristics)
 IT Secondary batteries
 (lithium; **electrolyte** for lithium
battery to reduce overcharge and improve electrochem.
 characteristics)
 IT Peroxides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (organic; **electrolyte** for lithium
battery to reduce overcharge and improve electrochem.
 characteristics)
 IT Alcohols, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (trihydric; **electrolyte** for lithium
battery to reduce overcharge and improve electrochem.
 characteristics)
 IT 3087-37-4, Tetrapropyltitanate
 RL: CAT (Catalyst use); USES (Uses)
 (**electrolyte** for lithium battery to
 reduce overcharge and improve electrochem. characteristics)
 IT 71-43-2, Benzene, uses 96-49-1, Ethylene carbonate 105-58-8,
 Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3,
 Toluene, uses 462-06-6, Fluorobenzene 616-38-6, Dimethyl
 carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl
 carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate
 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium
 perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium
 aluminate (Li₅AlO₄) 14283-07-9, Lithium tetrafluoroborate

18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate

RL: DEV (Device component use); USES (Uses)

(**electrolyte** for **lithium battery** to reduce overcharge and improve electrochem. characteristics)

IT 126-58-9DP, Dipentaerythritol, reaction product with

ϵ -caprolactone 502-44-3DP, ϵ -Caprolactone, reaction product with dipentaerythritol 609772-45-4P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**electrolyte** for **lithium battery** to reduce overcharge and improve electrochem. characteristics)

IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 79-10-7D, Acrylic acid, ω -fatty acid esters C2-C21 79-41-4D, Methacrylic acid, ω -fatty acid esters C2-C21 94-36-0, Benzoyl peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyle peroxide 2398-37-0, 3-Bromoanisole 2845-89-8, 3-Chloroanisole 3006-82-4, tert-Butylperoxy -2-ethyl-hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 93343-10-3, 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole 609365-67-5

RL: MOA (Modifier or additive use); USES (Uses)

(**electrolyte** for **lithium battery** to reduce overcharge and improve electrochem. characteristics)

L54 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:727549 HCAPLUS Full-text

DOCUMENT NUMBER: 139:397889

TITLE: Oxygen Transport Properties of Organic **Electrolytes** and Performance of **Lithium/Oxygen Battery**

AUTHOR(S): Read, J.; Mutolo, K.; Ervin, M.; Behl, W.; Wolfenstine, J.; Driedger, A.; Foster, D.

CORPORATE SOURCE: US Army Research Laboratory, AMSRL-SE-DC, Adelphi, MD, 20783-1197, USA

SOURCE: Journal of the Electrochemical Society (2003), 150(10), A1351-A1356

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

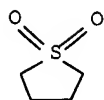
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The oxygen transport properties of several organic **electrolytes** were characterized through measurements of oxygen solubility and **electrolyte** viscosity. Oxygen diffusion coeffs. were calculated from **electrolyte**

viscosities using the Stokes-Einstein relation. Oxygen solubility, **electrolyte** viscosity, and oxygen partial pressure were all directly correlated to discharge capacity and rate capability. Substantial improvement in cell performance was achieved through **electrolyte** optimization and increased oxygen partial pressure. The concentration of oxygen in the electrode under discharge was calculated using a semi-infinite medium model with simultaneous diffusion and reaction. The model was used to explain the dependence of cell performance on oxygen transport in organic **electrolyte**.

- IT 126-33-0, Tetramethylene sulfone
 RL: DEV (Device component use); PRP (Properties); RCT (Reactant);
 RACT (Reactant or reagent); USES (Uses)
 (**electrolyte** solvent; oxygen transport properties of
 organic **electrolytes** and performance of **lithium**
 /oxygen **battery**)
- RN 126-33-0 HCAPLUS
- CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 45, 72, 76
- ST oxygen diffusion **lithium battery**
electrolyte soly viscosity oxide capacity
- IT Solubility
 (Bunsen coeffs. of oxygen in solvents and **lithium**
salt/solvent electrolyte mixts.; oxygen
 transport properties of organic **electrolytes** and
 performance of **lithium/oxygen battery**)
- IT Fluoropolymers, uses
 RL: DEV (Device component use); TEM (Technical or engineered
 material use); USES (Uses)
 (composite cathode with Super P; oxygen transport properties of
 organic **electrolytes** and performance of **lithium**
 /oxygen **battery**)
- IT Primary **batteries**
 (**lithium**; oxygen transport properties of organic
electrolytes and performance of **lithium/oxygen**
battery)
- IT Electric impedance
 (of **batteries** with various **electrolyte** solns.; oxygen
 transport properties of organic **electrolytes** and
 performance of **lithium/oxygen battery**)
- IT Ionic conductivity
 Viscosity
 (of **lithium salt/solvent electrolyte**
 mixts.; oxygen transport properties of organic **electrolytes**
 and performance of **lithium/oxygen battery**)
- IT Absorption
 (of oxygen by **electrolyte** solns.; oxygen transport
 properties of organic **electrolytes** and performance of
lithium/oxygen battery)
- IT Battery **electrolytes**
 (oxygen transport properties of organic **electrolytes** and
 performance of **lithium/oxygen battery**)
- IT Diffusion

- (oxygen; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 7440-44-0, Super P, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(activated, composite cathode with PTFE; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(cathode support and current collectors; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 9002-84-0, PTFE
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(composite cathode with Super P; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 7782-44-7, Oxygen, uses
RL: PRP (Properties); RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(diffusion; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 21324-40-3, Lithium hexafluorophosphate (LiPF₆)
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(**electrolyte** solute; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 67-68-5, Dimethyl sulfoxide, uses 96-48-0, γ -Butyrolactone
96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses
110-71-4, 1,2-Dimethoxyethane 112-49-2, Triethylene glycol
dimethyl ether 126-33-0, Tetramethylene sulfone
143-24-8, Tetraethylene glycol dimethyl ether 616-38-6, Dimethyl carbonate
623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate
872-50-4, uses
RL: DEV (Device component use); PRP (Properties); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(**electrolyte** solvent; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 12031-80-0, Lithium peroxide (Li₂O₂) 12057-24-8, Lithium oxide (Li₂O), formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(film formed on cathode to kill discharge; oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)
- IT 7440-02-0, Nickel, uses

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(oxygen transport properties of organic **electrolytes** and performance of **lithium/oxygen battery**)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L54 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:656287 HCAPLUS Full-text

DOCUMENT NUMBER: 139:182872

TITLE: Polymer **electrolyte** for **lithium secondary battery**

INVENTOR(S): Jung, Cheol-Soo; Kim, Ki-Ho; Bong, Cul-Hwen; Yang, Doo-Kyung; Lee, Kyoung-Hee; Lee, Yong-Beom; Lim, Hyun-Leong; Yamaguchi, Takitaro; Shimizu, Ryuichi

PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea

SOURCE: U.S. Pat. Appl. Publ., 14 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
US 2003157411	A1	20030821	US 2002-287486	20021105
US 7223501	B2	20070529		
KR 2003068714	A	20030825	KR 2002-8303	20020216
JP 2003249264	A	20030905	JP 2003-31544	20030207
CN 1438727	A	20030827	CN 2003-103890	20030214

PRIORITY APPLN. INFO.: KR 2002-8303 A 20020216

AB A solid polymer **electrolyte**, a **lithium battery** employing the same, and methods of forming the **electrolyte** and the **lithium battery** are disclosed. The polymer **electrolyte** includes polyester methacrylate having a polyester polyol moiety having three or more hydroxide (-OH) groups, at least one hydroxide group being substituted by a methacrylic ester group and at least one hydroxide group being substituted by a radical non-reactive group, or its polymer, a **peroxide** having 6-40 carbon atoms, and an **electrolytic** solution including a **lithium salt** and an organic solvent.

IT 94-36-0, Benzoyl **peroxide**, processes

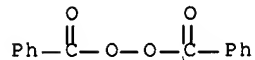
105-74-8, Lauroyl **peroxide**

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(polymer **electrolyte** for **lithium secondary battery**)

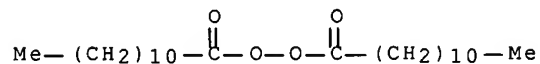
RN 94-36-0 HCAPLUS

CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS

CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)

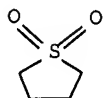


IT 126-33-0, Sulfolane

RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary battery)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM H01M010-40

ICS H01M010-04

INCL 429317000; 429307000; 429316000; 029623100

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST polymer electrolyte lithium secondary battery

IT Aromatic hydrocarbons, uses

RL: MOA (Modifier or additive use); USES (Uses)
(fluoro; polymer electrolyte for lithium secondary battery)

IT Secondary batteries

(lithium; polymer electrolyte for lithium secondary battery)

IT Battery electrolytes

Polymer electrolytes
(polymer electrolyte for lithium secondary battery)

IT Polyesters, uses

RL: DEV (Device component use); USES (Uses)
(polymer electrolyte for lithium secondary battery)

IT 3087-37-4, Tetrapropyltitanate

RL: CAT (Catalyst use); USES (Uses)
(polymer electrolyte for lithium secondary battery)

IT 94-36-0, Benzoyl peroxide, processes

105-74-8, Lauroyl peroxide

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(polymer **electrolyte** for lithium secondary battery)

IT 67-68-5, DmsO, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 98-95-3, Nitrobenzene, uses 100-47-0, Benzonitrile, uses 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 108-90-7, Chlorobenzene, uses 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-46-6, Diethylene glycol, uses 115-10-6, Dimethyl ether 126-33-0, Sulfolane 127-19-5, Dimethylacetamide 542-52-9, Dibutyl carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 646-06-0, Dioxolane 872-36-6, Vinylene carbonate 1072-47-5, 1,3-Dioxolane, 4-methyl 1300-21-6, Dichloroethane 4437-85-8, Butylene carbonate 6482-34-4, Diisopropyl carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 10377-51-2, Lithium iodide (LiI) 14024-11-4, Aluminum lithium chloride AlLiCl_4 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 30714-78-4, Ethyl butyl carbonate 33454-82-9, Lithium triflate 51729-83-0, Methyl isopropyl carbonate 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5

RL: DEV (Device component use); USES (Uses)

(polymer **electrolyte** for lithium secondary battery)

IT 95-52-3, 2-Fluorotoluene 352-32-9, 4-Fluorotoluene 352-70-5, 3-Fluorotoluene 462-06-6, Benzene, fluoro- 581054-59-3D, mixed acrylic and pentanoic acid esters

RL: MOA (Modifier or additive use); USES (Uses)

(polymer **electrolyte** for lithium secondary battery)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L54 ANSWER 11 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:375786 HCAPLUS Full-text

DOCUMENT NUMBER: 131:7556

TITLE: Fire-resistant gas generating battery **electrolytes**

INVENTOR(S): Narang, Subhash; Ventura, Susanna; Cox, Philip

PATENT ASSIGNEE(S): SRI International, USA

SOURCE: PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

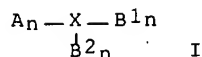
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 9928987	A1	19990610	WO 1998-US25466	19981201

W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU,

CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM,
 HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
 LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU,
 SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ,
 VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
 RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
 ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
 CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
 CA 2313027 A1 19990610 CA 1998-2313027 199812
 01
 AU 9916161 A 19990616 AU 1999-16161 199812
 01
 EP 1042838 A1 20001011 EP 1998-960601 199812
 01
 R: DE, GB
 JP 2001525597 T 20011211 JP 2000-523720 199812
 01
 PRIORITY APPLN. INFO.: US 1997-67226P P 199712
 02
 WO 1998-US25466 W 199812
 01

GI

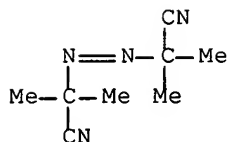


AB A compound that generates a fire-retardant gas upon decomposition has general structure (I) wherein, X is N, C, S, NO, N₂, CO, SO; A is substantially any organic moiety including alkyl, aryl, alkoxy, cyclic, fused cyclic, heteroatoms, ketals, acetals or alcs. B₁ and B₂ are substantially any organic moiety including alkyl, aryl, alkoxy, cyclic, fused cyclic, heteroatoms, ketals, acetals or alcs., also including oxygen, hydrogen and null; and n is an integer from 0-100. Preferred gases generated thereby include CO, SO₂, SO₃, NO, N₂O, NO₂ and N₂. It is also preferred that the generated gas assists in formation of a solid electrolyte interface (SEI) between the electrolyte and at least one of the electrodes. It is most preferred that the cell have a conductivity greater than 10⁻³ S/cm.

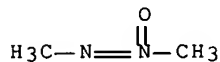
IT 78-67-1, Azobis(isobutyronitrile)
 25843-45-2, Azoxymethane 28452-93-9,
 Butadiene sulfone
 RL: MOA (Modifier or additive use); USES (Uses)
 (electrolyte additive; fire-resistant gas generating
 battery electrolytes)

RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



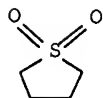
RN 25843-45-2 HCAPLUS
 CN Diazene, dimethyl-, 1-oxide (9CI) (CA INDEX NAME)



RN 28452-93-9 HCAPLUS
 CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

CRN 126-33-0
 CMF C4 H8 O2 S



IC ICM H01M010-40
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST battery **electrolyte** fire resistant gas generation
 IT **Azo** compounds
 Azoxy compounds
 Nitrites
 Sulfates, uses
 Sulfites
 Sulfones
 RL: MOA (Modifier or additive use); USES (Uses)
 (**electrolyte** additive; fire-resistant gas generating
 battery **electrolytes**)
 IT Battery **electrolytes**
 Fire-resistant materials
 (fire-resistant gas generating battery **electrolytes**)
 IT Fluoropolymers, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (fire-resistant gas generating battery **electrolytes**)
 IT Secondary **batteries**
 (lithium; fire-resistant gas generating battery
 electrolytes)
 IT 78-67-1, **Azobis**(isobutyronitrile) 78-82-0,
 Isopropyl nitrile 543-29-3, Isobutyl nitrate 822-38-8, Ethylene
 trithiocarbonate 3741-38-6, Ethylene sulfite 25843-45-2,
 Azoxymethane 28322-92-1 28452-93-9, Butadiene
 sulfone
 RL: MOA (Modifier or additive use); USES (Uses)

(**electrolyte** additive; fire-resistant gas generating battery **electrolytes**)

IT 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 12057-17-9, Lithium manganese oxide LiMn_2O_4 12068-85-8, Iron disulfide 52627-24-4, Cobalt lithium oxide

RL: DEV (Device component use); USES (Uses)

(fire-resistant gas generating battery **electrolytes**)

IT 96-49-1, Ethylene carbonate 616-38-6, Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(fire-resistant gas generating battery **electrolytes**)

IT 630-08-0, Carbon monoxide, formation (nonpreparative) 7446-09-5, Sulfur dioxide, formation (nonpreparative) 7446-11-9, Sulfur trioxide, formation (nonpreparative) 7727-37-9, Nitrogen, formation (nonpreparative) 10024-97-2, Nitrogen oxide (N_2O), formation (nonpreparative) 10102-43-9, Nitric oxide, formation (nonpreparative) 10102-44-0, Nitrogen dioxide, formation (nonpreparative)

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)

(fire-resistant gas generating battery **electrolytes**)

IT 78-40-0, Triethyl phosphate 24937-79-9

RL: MOA (Modifier or additive use); USES (Uses)

(fire-resistant gas generating battery **electrolytes**)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L54 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:702055 HCAPLUS Full-text

DOCUMENT NUMBER: 128:13756

TITLE: Acrylic polyurethane solid **electrolyte** -formable compositions and manufacture of solid **electrolytes** using them

INVENTOR(S): Takiyama, Eiichiro; Matsui, Fumio; Morita, Katsuhisa; Takino, Yukiko; Ogiwara, Kazushige; Takahashi, Kentaro

PATENT ASSIGNEE(S): Showa Highpolymer Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	
JP 09278971	A	19971028	JP 1996-88528	19960410
PRIORITY APPLN. INFO.:				19960410

AB The compns. contain (A) monomers having (meth)acryloyl groups and acetoacetoxy groups in a mol., (B) unsatd. polyurethanes obtained by reaction of (meth)acryloyl- and OH-having unsatd. polyesters with isocyanates, (C) Li compds., and (D) solvents which can dissolve the Li compds. The **electrolytes** are manufactured by polymerization of the above compns., which may be

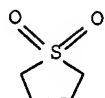
previously partially polymerized to control the viscosity, in a die. The compns. are useful for manufacture of film batteries. Thus, a composition containing AAEM (acetoacetoxyethyl methacrylate) 100, an unsatd. polyurethane [obtained by reaction of Placel FM 5 with MOI (isocyanatoethyl methacrylate)] 15, propylene carbonate 185, LiBF₄ 30, and benzoyl **peroxide** 2 parts was casted between 2 Pt electrode plate and polymerized at 80-100° for 2 h under N flow to give a soft gelatin-like polymer film with elec. conductivity 2.1×10^{-4} S/cm.

IT 126-33-0, Sulfolane

RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

RN 126-33-0 HCAPLUS

CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



IC ICM C08L033-14

ICS C08K003-24; C08L075-14; H01B001-06; H01M006-18; H01M010-40

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 52

ST acrylic polyurethane solid **electrolyte** lithium salt; cast polymn acrylic polyurethane solid **electrolyte**; acetoacetoxyethyl acrylate polyurethane lithium salt **electrolyte**; methacrylate acetoacetoxyethyl polyurethane lithium salt **electrolyte**

IT Polyurethanes, preparation

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acrylic; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Polymerization

(casting; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Battery **electrolytes**

(manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Polyurethanes, preparation

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyoxyalkylene-, acrylic; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT Polyelectrolytes

(solid; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 198956-70-6P 198956-71-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 7791-03-9, Lithium perchlorate 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

IT 75-05-8, Acetonitrile, uses 96-48-0, γ -Butyrolactone 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane

RL: NUU (Other use, unclassified); USES (Uses)
(solvent; manufacture of solid **electrolytes** from acrylic polyurethanes compns. containing acetoacetoxyethyl (meth)acrylate, unsatd. polyurethanes, and Li compds.)

=>